

This listing of claims will replace the prior version in the application:

### Claims

1. (Currently amended) Process for preparing a mercaptan ~~from comprising contacting~~ a thioether and hydrogen sulphide, ~~characterized in that it is carried out in the presence of hydrogen and a catalyst composition comprising a strong acid and at least one metal belonging to selected from group VIII of the Periodic Table.~~

2. (Currently amended) Process according to ~~Claim~~ claim 1, ~~characterized in that wherein~~ the strong acid is selected from the group consisting of:

- (a) one or more heteropolyacids selected from:
  - (i) a compound of formula:] the group  $H_3PW_{12}O_{40} \cdot nH_2O$ ,  $H_4SiW_{12}O_{40} \cdot nH_2O$  or  $H_6P_2W_{18}O_{62} \cdot nH_2O$ , in which n is an integer representing the number of molecules of water of crystallization, and is between 0 and 30, ~~preferably between 6 and 20;~~
  - ~~-(ii) a potassium, rubidium, caesium or ammonium salt~~ salts thereof of at least one compound (i), or a mixture and mixtures of such salts;
- (b) a sulphated zirconium oxide,
- (c) a tungstic zirconium oxide,
- (d) a zeolite, and
- (e) a cationic resin.

3. (Currently amended) Process according to ~~Claim—2~~ claim 1, wherein ~~characterized in that the catalyst employed comprises~~ the strong acid is selected from the group potassium, rubidium, caesium or ammonium salts or a mixture of such salts of  $H_3PW_{12}O_{40} \cdot nH_2O$ ,  $H_4SiW_{12}O_{40} \cdot nH_2O$  or  $H_6P_2W_{18}O_{62} \cdot nH_2O$ , in which n is an integer representing the number of molecules of water of crystallization, and is between 0 and 30, a sulphated zirconium oxide, a tungstic zirconium oxide, a zeolite, and a cationic resin.—as strong acid a hetrepolyaci (ii), or one of the compounds (b), (c), (d) or (e).

4. (Currently amended) Process according to ~~Claim—3~~claim 1, ~~characterized in that wherein~~ the catalyst composition comprises:

- from 90% to 99.9%, ~~preferably from 98.5% to 99.5%~~, by weight of strong acid, and

- from 0.01% to 10%, ~~preferably from 0.05% to 1.5%~~, by weight of at least one metal from group VIII.

5. (Currently amended) Process according to ~~Claim 2~~claim 1, ~~characterized in that the catalyst employed comprises as~~ wherein the strong acid is a heteropolyacid (i) selected from the group  $H_3PW_{12}O_{40} \cdot nH_2O$ ,  $H_4SiW_{12}O_{40} \cdot nH_2O$  or  $H_6P_2W_{18}O_{62} \cdot nH_2O$ , in which n is an integer representing the number of molecules of water of crystallization, and is between 0 and 30.

6. (Currently amended) Process according to ~~Claim~~claim 5, ~~characterized in that~~ wherein the catalyst composition comprises:

- from 10% to 60%, ~~preferably from 25 to 50%~~, by weight of strong acid,

- from 0.01% to 10%, ~~preferably from 0.1% to 2%~~, by weight of at least one metal from group VIII, and

- from 30% to 80%, ~~preferably from 48% to 75%~~, by weight of a support selected from silica  $SiO_2$ , alumina  $Al_2O_3$ , titanium dioxide  $TiO_2$ , zirconium oxide  $ZrO_2$ , and activated carbon.

7. (Currently amended) Process according to ~~either of Claims 5 and~~ claim 6, ~~characterized in that~~ wherein the strong acid employed in the catalyst is 12-phosphotungstic acid, preferably impregnated on silica.

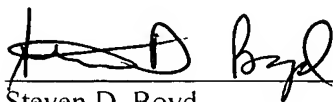
8. (Currently amended) Process according to one of ~~Claims 1 to 7~~claim 1, ~~characterized in that~~ wherein the at least one metal or metals belonging to group VIII of the Periodic Table are is selected from iron, cobalt, nickel, ruthenium, rhodium, palladium, osmium, iridium, and platinum.

9. (Currently amended) Process according to ~~Claim 8~~claim 1, ~~characterized in that~~ wherein the at least one metal or metals are is selected from palladium, ruthenium, and platinum.

10. (Currently amended) Process according to ~~either of Claims 8 and 9~~claim 1, ~~characterized in that wherein~~ the at least one metal is palladium.
11. (Currently amended) Process according to ~~one of Claims 1 and 5 to 10~~, characterized ~~in that~~claim 1 wherein the catalyst composition comprises approximately 40% by weight of 12-phosphotungstic acid, 1% of palladium and 59% of silica.
12. (Currently amended) Process according to ~~one of Claims 1 to 11~~, characterized in that claim 1, wherein the hydrogen is introduced in an amount corresponding to a molar  $H_2S/H_2$  ratio of between 10 and 200, ~~preferably between 50 and 100~~.
13. (Currently amended) Process according to ~~one of Claims 1 to 12~~, characterized in that claim 1, wherein the thioether ~~used~~ has the general formula:
- $$R-S-R' \quad (I)$$
- in which R and R', which are identical or different, represent a linear or branched alkyl radical of 1 to 20 carbon atoms, ~~preferably 1 to 12 carbon atoms~~; or else a cycloalkyl radical of 3 to 7 carbon atoms.
14. (Currently amended) Process according to ~~one of Claims 1 to 13~~, characterized in that claim 1, wherein the hydrogen sulphide is introduced in an amount corresponding to a molar  $H_2S$ /thioether ratio of between 1 and 40, ~~preferably between 2 and 30, more preferably between 2 and 10~~.
15. (New) Process according to claim 1, wherein the catalyst composition comprises:
- from 98.5% to 99.9%, by weight of strong acid, and
  - from 0.05% to 1.5%, by weight of at least one metal from group VIII.
16. (New) Process according to Claim 5, wherein the catalyst composition comprises:
- from 25 to 50%, by weight of strong acid,
  - from 0.1% to 2%, by weight of at least one metal from group VIII, and
  - from 48% to 75%, by weight of a support selected from silica  $SiO_2$ , alumina  $Al_2O_3$ , titanium dioxide  $TiO_2$ , zirconium oxide  $ZrO_2$ , and activated carbon.

17. (New) Process according to claim 1, wherein the hydrogen is introduced in an amount corresponding to a molar  $\text{H}_2\text{S}/\text{H}_2$  ratio of between 50 and 100.
18. (New) Process according to claim 1, wherein the hydrogen sulphide is introduced in an amount corresponding to a molar  $\text{H}_2\text{S}/\text{thioether}$  ratio of between 2 and 30.
19. (New) Process according to claim 1, wherein the hydrogen sulphide is introduced in an amount corresponding to a molar  $\text{H}_2\text{S}/\text{thioether}$  ratio of between 2 and 10.
20. (New) Process according to claim 1, wherein n is between 6 and 20.
21. (New) Process according to claim 7, wherein said 12-phosphotungstic acid is impregnated on silica.
22. (New) Process according to claim 13, wherein said linear or branched alkyl radical has 1 to 12 carbon atoms.

Respectfully submitted,



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